

USSR

UDC 621.318.13:621.372.85

BEZMATERNYKH, L. N., SHVARTSMAN, G. I., MASHCHENKO, V. G., AFANAS'YEV, A. P., BOKOV, L. A., PROKHOPOV, A. R., ZAYTSEV, V. A., KUZHELEV, S. M.

"Controllable Delay Lines Based on Yttrium-Garnet Ferrite Rods"

V sb. Tonkiye magnitn. plenki, vychisl. tekhn. i radiotekhn. T. 2 (Thin Magnetic Films, Computer Technology and Radio Engineering--collection of works. Vol 2), Krasnoyarsk, 1971, pp 142-146 (from RZh-Radiotekhnika, No 11, Nov 71, Abstract No 11B190)

Translation: The paper presents the results of an experimental study on excitation and propagation of magnetoelastic and magnetostatic waves in yttrium-garnet ferrite rods as applied to their use in controllable delay lines. An analysis is made of relationships for delay time as a function of the external magnetic field when frequency is held constant, delay time as a function of frequency when the magnetic field is held constant, and total insertion losses as a function of delay time. The measurements were made in the frequency range of 560-3800 MHz. Two illustrations, bibliography of eight titles. A. K.

1/1

USSR

B
BOKOV, O. G., SHEKHTER, L. Sh.

"Relation between Tensors of Micro- and Macropolarizability of Nonlinear Anisotropic Dispersion Media"

Leningrad, Optika i Spektroskopiya, September 1970, pp 460-2

ABSTRACT: A method of side currents and quantum Green functions of an electromagnetic field is used to find the relation between tensors of linear and non-linear polarizability of molecules and tensors of the corresponding polarizability of anisotropic media with spatial and time dispersion.

The article includes 14 equations. There are 6 references.

1/1

- 62 -

1/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--RELATION BETWEEN NONLINEAR POLARIZABILITY TENSOR OF MOLECULES AND
THE GREEN LAG FUNCTIONS OF THE APPLIED ELECTROMAGNETIC FIELD -U-
AUTHOR-(03)-83KOV, O.G., SHEKHTER, L.SH., YUDOVICH, M.V.
COUNTRY OF INFO--USSR **B**
SOURCE--OPT. SPEKTROSK. 1970, 28(2), 228-31
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--TENSOR, TENSOR ANALYSIS, NONLINEAR EFFECT, MAGNETIC
POLARIZATION, MOLECULE, GREEN FUNCTION, ELECTROMAGNETIC FIELD,
MATHEMATIC EXPRESSION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1992/1762 STEP NO--UR/0051/70/028/002/0028/0231
CIRC ACCESSION NO--AP0112768
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0112768

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITY IS INVESTIGATED OF APPLYING THE DZYALOSHINSKII AND PITAEVSKII (1959) METHOD FOR CALC. MOL. POLARIZABILITY TENSORS. EXPRESSIONS ARE DERIVED FOR THE TENSORS OF LINEAR AND NONFUNCTIONS OF THE APPLIED ELECTROMAGNETIC FIELD.

UNCLASSIFIED

USSR

UDC 621.762.001:669.296'784

NEZHEVENKO, L. B., GROSHEV, V. I., GUREVICH, B. D., and BOKOV, O. V.

"Influence of Production Conditions of Zirconium Carbide Powder on Properties of Sintered Specimens"

Tugoplavk. karbidy [Refractory Carbides -- collection of works], Kiev, Nauk. dumka Press, 1970, pp 58-61 (Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract No 2 G403 by the authors)

Translation: The influence of the content of incompletely reduced oxides on the sintering qualities of products of Zr carbide powders is studied. An increase in the content of O in ZrC powders of from 0.2 to 7% decreases the rate of grain growth of finished products and helps to stabilize grain size. A method is developed for production of specimens of Zr carbide of high density. 3 figures; 2 tables; 7 biblio. refs.

1/1

- 32 -

Acc. Nr:

AP0048297

Abstracting Service:
CHEMICAL ABST. 5170

Ref. Code:

4R0181

94652a Magnetic properties of gadolinium, neodymium, and praseodymium aluminates with perovskite structure. Starovoi-
tov, A. T.; Ozhogin, V. I.; Bokov, V. A.; Zonn, Z. N.; Lari-
nov, G. M. (Inst. Poluprov.; Leningrad, USSR). *Fiz. Tverd.*
Tela 1970, 12(1), 301-3 (Russ). Results are given of the mea-
surements of the temp. dependences of inverse susceptibility in
static fields and the magnetization curves in pulsed fields of
 ≤ 230 kOe at 4.2 and 1.7°K of single-crystal aluminates of Gd,
Nd, and Pr. $GdAlO_3$ is an antiferromagnet with Neel temp.

$T_N = 3.87^\circ K$ and the axis of antiferromagnetism directed along
the orthorhombic axis [010]. Satn. of the magnetization curve
of $GdAlO_3$ in a field of 42 kOe at 1.7°K corresponds to disruption
of antiferromagnetic ordering. The ferromagnetic moment of
 Gd^{3+} is $6.57 \mu_B$. The magnetic susceptibility of $NdAlO_3$ at 80-
300°K follows the Curie-Weiss law and antiferromagnetic order-
ing is present. For $PrAlO_3$, the susceptibility depends on temp.
in a complex manner.

A. Libackyj

REEL/FRAME
19792019

USSR

UDC: None

BOKOV, Ye. S. and SOBOL'KOVA, K. P.

"Stand for Testing Service Life and Limiting Speeds of Bearings"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 33, 1972, p 103, Author's certificate No (11)357489

Abstract: This device contains a testing head and an interacting loading mechanism, a testing control device, and a temperature measuring device. Its function is to test carbon bearings. A brief description of its construction and operation is given together with a drawing.

1/1

- 184 -

Waveguides

USSR

UDC: 621.372.832(088.8)

FEL, S. S., BOKOVA, A. P.

"A Directional Coupler Based on a Rectangular Multiple-Mode Waveguide"

USSR Author's Certificate No 260698, filed 29 Mar 68, published 24 Sep 70
(from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2B228 P)

Translation: This Author's Certificate introduces a directional coupler based on a rectangular multiple-mode waveguide. The device contains a section of multiple-mode waveguide, and sections of single-mode waveguides bent in the E-plane and arranged around the perimeter of the multiple-mode guide with narrow walls in contact with each other. The end faces of the single-mode guides are located in a single plane perpendicular to the longitudinal axis of the multiple-mode guide, which gives the directional coupler a wide-band effect.

1/1

USSR

UDC: 621.372.832.4

FEL, S. S., BOKOVA, A. P.

"A Directional Coupler Based on a Rectangular Multiple-Mode Waveguide"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztzy, Tovarnyye Znaki, No 18, 1970, Author's Certificate No 200098, filed 29 Mar 68, p 195

Abstract: This author's certificate introduces a directional coupler based on a rectangular multiple-mode waveguide. The device contains a section of multiple-mode waveguide, and sections of single-mode waveguide which are bent in the E-plane. As a distinguishing feature of the patent, the device is designed for directed wide-band branching of the power of the modes. The sections of single-mode waveguides are arranged around the periphery with their narrow walls in contact with each other, the ends of these sections being located in a single plane perpendicular to the longitudinal axis of the multiple-mode waveguide.

1/1

USSR

UDC 535.4

BOKOVA, K. M. and KOVRIZHNYKH, Yu. T., Sverdlovsk Gospedinstitut

"Some Simple Demonstrations in Wave Optics With a He-Ne Laser"

Tomsk, Izvestiya vysshikh Uchebnykh Zavedeniy--Fizika, No 11, 1972, pp 122-123

Abstract: The purpose of this brief communication is to show how an improvement in the interference pattern produced by a Fresnel double prism can be obtained through the use of laser rather than ordinary light sources. The diagram of a system designed to demonstrate that fact is shown and an explanation of its operation given. Such a system can be used in a lecture hall in a physics class for studying the wave phenomenon of light. Photographs are reproduced of interference bands obtained with the use of an LG-75 laser and of the diffraction pattern from three-millimeter steel balls.

1/1

USSR

UDC 621.762.001

BOKOVA, L. S.

"Study of the Effect of Temperature and the Degree of Deformation on the Properties and Structure of Hot-Rolled Sintered Aluminum Powder Strips"

Tr. Gor'kov, politekhn. in-ta (Works of Gor'kiy Polytechnic Institute), Vol 26, No 15, 1976, pp 28-32 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G407)

Translation: APS-1 type aluminum powder was rolled into a billet strip 1.8 mm thick with a density of 2.25 g/cm^3 . The billets were heated at 300, 400, 500, and 600°, and they were subjected to compacting rolling on cold and hot rolls. The best combination of density and relative elongation was obtained when rolling billets heated to 500° on rolls heated to 400°. Increasing the degree of deformation of the billets to 60% of those heated to 500° and rolled on rolls heated to 400° raises σ_b and δ . With a degree of deformation of 60-80%, the density does not change in practice, and the elongation per unit length increases insignificantly. The variation of the mechanical properties of hot-rolled sintered aluminum powder strips is connected with compacting of the material and fractionation of the Al_2O_3 and Al structure. The article contains 1 illustration and 1 table.

1/1

- 47 -

Thermomechanical Treatment

USSR

UDC: 621.785.79

SPEKTOR, Ya. I., GORELIK, S. S., SPEKTOR, E. N., BOKOVA, T. V., Moscow Institute of Steel and Alloys

"Effect of Preliminary Thermomechanical Treatment on the Structurally Sensitive Characteristics of Construction Steel"

Moscow, Izvestiya VUZov: Chernaya Metallurgiya, No 11, 1972, pp 135-138

Abstract: The purpose of this work was investigation of the influence of different preliminary thermomechanical treatment schedules and individual stages of heat treatment on resistance to small and large plastic deformations, grain orientation and the fine structure of cold-rolled air-quenched structural steel grade KVK42 (0.42% C, approximately 1% Cr, Mn and Si). It was found that the elastic limit of the steel after heat treatment increases with the temperature of intermediate (pre-recrystallization) annealing before quenching in the preliminary thermomechanical treatment cycle, and with the rate of heating prior to quenching. Intermediate annealing before quenching also intensifies the grain orientation as compared with that of steel rolled immediately after quenching. The elastic limit is appreciably increased by intermediate annealing, which is especially noticeable for a higher reduction during rolling.

1/1

1/2 012 UNCLASSIFIED PROCESSING DATE--18OCT70
TITLE--CONSTANT SPEED D.C. MOTOR -U-

AUTHOR--(04)--TIMOFEEV, B.V., SAMOKHIN, V.P., BOKOVY, YU.V., KUROCHKIN,
YU.M.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 248039
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI NR 23
DATE PUBLISHED--05JAN70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--DIRECT CURRENT, ELECTRIC MOTOR, PATENT, SPEED REGULATOR,
TACHOMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/1523

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0121940

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AA0121940

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ILLUSTRATION SHOWN ON MICROFICHE.
CONSTANT SPEED D.C. MOTOR IS SIMPLIFIED IN DESIGN. THE POWER TO THE
MOTOR (4) IS SUPPLIED FROM AN INVERTOR (1) THROUGH A GENERATOR AND
CONTROLLED RECTIFIERS (3). THE SPEED OF THE MOTOR IS CONTROLLED BY
PULSES GENERATED IN THE COMPARISON CIRCUIT (9) BALANCING THE SIGNALS
FROM THE STANDARD POTENTIOMETER (14) AGAINST THE PULSES OF THE
TACHOGENERATOR (5). TYPICALLY FOR THE SPEED CONTROL SYSTEMS A
SELFOSCILLATING ARRANGEMENT IS ESTABLISHED.

UNCLASSIFIED

USSR

UDC 621.372.852.2

BCHINSKAYA, A.A., SOLOMANA, A.V.

"Wide-Band Phase-Shifting Circuits Based On The Resonance Of Domain Boundaries In Ferrites"

Vestn. Kiyev. politekh. in-ta, Ser. radiotekhn. i elektroakust. (Bulletin Of The Kiev Polytechnical Institute. Radio Engineering and Electroacoustics Series), 1971, No 8, pp 15-18 (from RZh--Radiotekhnika, No 9, Sept 1971, Abstract No 9B149)

Translation: The possibility is shown of creating wide-band phase-shifting networks based on the use of the dispersion of the magnetic permeability of ferrite materials which results from resonance of the domain boundaries. The theoretical and experimental phase characteristics are presented of quadripoles operating in the dispersion band of the magnetic permeability of the core. The possibility is shown of a deformation of the characteristics by a change of the parameter of the connection, and by a choice of the dimensions and trade-name of the core. The frequency and phase characteristics are presented of wide-band circuits for a constant phase shift of 30° , 45° , and 60° . 3 ill. 3 ref. Summary.

1/1

- 22 -

USSR

UDC: 621.317.411

BOKRINSKAYA, A. A., SOLOMAKHA, A. V.

"Measuring the Magnetic Spectra of High-Permeability Ferrites"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 120-121 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A359)

Translation: The authors consider a circuit for measuring the magnetic spectra of polycrystal ferrites with high magnetic permeability by using current and voltage phase relationships. The specimen to be studied is introduced into the circuit as the core of a coil whose inductance and equivalent impedance are measured as a function of frequency. Relationships are derived for calculating the quantities to be measured. Two illustrations, bibliography of two titles. N. S.

1/1

- 80 -

USSR

UDC: 621.317.335.3

BOKRINSKIY, A. A., SHELAMOV, G. N.

"Using Dielectric Cavities to Measure the Parameters of Dielectrics on Superhigh Frequencies"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 83-84 (from RZh-Radiotekhnika, no 1, Jan 71, Abstract No 1A370)

Translation: A method is proposed which is based on measuring the parameters of a resonator made from the dielectric to be studied. The measurement element is a system made up of the dielectric resonator and a transmission line. The oscillatory mode which is fundamental for the given dielectric resonator is best to use for measuring permittivity. When a cylindrical dielectric cavity is used, special tables are used for computations where the product of the resonance frequency of the dielectric resonator by the square root of permittivity is given as a function of the geometric dimensions of the cavity. The loss tangent is determined with respect to the natural Q of the dielectric resonator which is determined

1/2

USSR

BOKRINSKIY, A. A. and SHELAMOV, G. N., Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1, 1970, pp 83-84

from the measured Q and the coupling factor. The proposed method was used for measuring the permittivity and loss tangent of various types of rutile-based microwave ceramics. E. L.

2/2

- 83 -

AA0047007

BOKSER O. Ya.

UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent, 1-70

242320 REFLEXOMETER as per Authorship Certificate
No. 227500, including reflex time gauges, sensors
etc, differing in that it is fitted with breathing
sensor, a microphone transformer, an amplifier
with transformer output and a detector whose output
signal controls the time count of a given reaction
in the time gauge. If the reaction is not accom-
panied or preceded by exhalation, the time count
stops as soon as the breathing reaction starts.
This allows recording only of those reflexes that
are accompanied or anticipated by a breathing
pause. 14.6.67 as 1160987/31-16. Add to 227500
O.Ya. Bokser. (8.9.69) Bul. 15/25.4.69. Class 30a
Int. Cl. A 61b.

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JW

19790434

1/2 014 UNCLASSIFIED PROCESSING DATE--1[SEP76
TITLE--FORMATION OF THE THETA PHASE IN THE AGING OF A HIGH RESISTANCE
ALLOY BASED ON A NICKEL MANGANESE INTERMETALIC COMPOUND -U-
AUTHOR--BOKSHITSKY, I.YA., YELYUTIN, O.P., SHIRENIN, V.I., USIKOV, M.P.
COUNTRY OF INFO--USSR
SOURCE--UKRAIN. FIZ. ZHUR. JAN. 1970, 15, (1), 114-117
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ELECTRIC RESISTANCE METAL AGING, ALLOY PHASE TRANSFORMATION,
INTERMETALLIC COMPOUND, IRON ALLOY, VANADIUM ALLOY, NICKEL COMPOUND,
MANGANESE COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1203 STEP NO--UR/0185/70/015/001/0114/0117
CIRC ACCESSION NO--AP0107679
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107679

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF CHANGES ASSOCIATED WITH AGEING AT 350DEGREESC ON THE STURCTURE AND PROPERTIES OF THE HIGH RESISTANCE NIMN-V-FE (QUASI TERNARY) ALLOY NG45F WAS STUDIED, WITH SPECIAL REF. TO THE FORMATION OF THE THETA PHASE. THE ELECTRICAL RESISTANCE WAS MEASURED AS A FUNCTION TIME AND CORRELATED WITH THE PHASE COMPOSITION, AS REVEALED BY X RAY ANALYSIS. THE RESISTANCE REACHED A MAXIMUM AFTER 5-6 H, DEPENDING ON THE PREVIOUS HEAT TREATMENT. THE THETA PHASE HAD A STRUCTURE WITH THE CUAU I TYPE OF ORDERING.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--AGING OF POLYPROPYLENE IN NITRIC ACID -U-
AUTHOR-(03)-VOLCHEK, A.M., BOKSHITSKIY, M.N., KLINOV, I.YA.
COUNTRY OF INFO--USSR
SOURCE--PLAST. MASSY 1970, (3), 37-9
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, CHEMISTRY
TOPIC TAGS--THERMAL AGING, POLYPROPYLENE, NITRIC ACID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0662 STEP NO--UR/0191/70/000/003/0037/0039
CIRC ACCESSION NO--AP0119570
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119570

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AGING OF CRYST. POLYPROPYLENE (I) (DEGREE OF CRYSTALLINITY 50PERCENT) IN 10-80PERCENT HNO SUB3 WAS STUDIED AT 20-100DEGREES FOR 1800 HR (AT EACH EXPTL. TEMP.). THE AGING KINETICS ARE DISCUSSED. SEVERAL EQUATIONS WERE DERIVED ANAL. FOR THE CALCN. OF I DURABILITY (TAU) AND MAX. ACID CONCN. AT WHICH THE POLYMER RETAINED ITS BASIC FUNCTIONS FOR A CERTAIN PERIOD OF TIEM. TWO NUMERICAL EXAMPLES FOR THE CLACN. OF TAU AND MAX. ACID CONCN. ARE PRESENTED.

UNCLASSIFIED

USSR

UDC: 669.1:541/1

ZHUKHOVITSKIY, A. A., BELASHCHENKO, D. K., BOKSHEYN, B. S., GRIGORYAN, V. A.,
GRIGOR'YEV, G. A., and GUGLYA, V. G.,

Fiziko-Khimicheskiye Osnovy Metallurgicheskikh Protsessov (Physico-Chemical Bases
of Metallurgical Processes), Moscow, Metallurgiya, 1973, 392 pp

Translation: Annotation. This book contains the material of special courses
used by the students of the Physics-Chemistry Department of the Moscow Institute
of Steel and Alloys. This work makes it possible for a broad range of young special-
ists to acquaint themselves with many branches of modern physics and physical chem-
istry. The book contains: 104 illustrations, 17 tables, and 292 bibliographic entries.
Contents.

Preface	6
Chapter One	
Chemical Bonds	
Perturbation Theory	14
Ionized Molecules of Hydrogen and the Hydrogen Molecule	18
The Use of the Method of Molecular Orbits for Molecules With Localized Bonds	27
Using the Method of Molecular Orbits for Delocalized Bonds	33
The Method of Valence Bonds	41
Complex Compounds	47

1/6

- 72 -

USSR

ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

Bonds in Metals	
Literature	53
Chapter Two	60
The Theory of Fluids	
Radial Distribution Function	
Radiation Scattering by a Simple Fluid	61
Determining the Radial Distribution Function and the Short-Range Order	63
Characteristic	
Correlation Functions	68
Computing Average Values	70
Equation of State of a Fluid	73
The Relation of the Microscopic Properties of a Fluid to the Radial	75
Distribution Function and the Interatomic Interaction Potential	
An Equation Which Combines the Correlation Functions	77
Calculating the Function of Radial Distribution in Superposition	79
Approximation With the Aid of a Digital Computer	
Applying the Statistical Theories of Fluids to Metals	85
Machine Methods for Calculating the Properties of Fluids	87
2/6	90

USSR

ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

Model Theory of Fluids	93
Collective Motions in Fluids	98
Some Problems of the Electron Theory of Liquid Metals	100
Electron Gas in Liquid Metals	101
Literature	104
Chapter Three	
The Thermodynamics of Alloys	
Basic Relationships of the Thermodynamics of Solutions	105
The Thermodynamics of Iron-Carbon Solutions	116
The Activity of Sulfur in Molten Iron	128
The Thermodynamics of Iron-Nitrogen Solutions	130
The Thermodynamics of Deoxidation	133
Literature	146
Chapter Four	
The Thermodynamics of Irreversible Processes	
Basic Concepts and Equations of the Thermodynamics of Irreversible Processes	150
Using the Basic Equations in Real Problems	161
Transformation of Chemical Forces	165

3/6

- 73 -

USSR

ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

The Thermoelectric Phenomena	171
The Transfer Phenomena in Electrolytes	177
Molecular Mechanisms of Transfer Heat Manifestation	191
Other Applications of the Thermodynamics of Irreversible Processes	195
Literature	198
Chapter Five	
Transfer Phenomena in Melts	
Electric Conductivity	199
Electro-Transfer	223
Diffusion	235
Ductility	249
Literature	252
Chapter Six	
The Kinetics of Heterogeneous Processes	
Convective Diffusion in Fluids	254
Diffusion and the Kinetic Region of Reaction	260
Diffusion Kinetics in Some Complex Processes	268
The Kinetics of Electrochemical Reactions at the Phase Interface	271

4/6

USSR

ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

The Role of Surface Phenomena in the Kinetics of Heterogeneous Reactions	273
Kinetics of Dissolution	277
Kinetics of Vaporization	281
The Kinetics of Absorption and the Elimination of Nitrogen	283
Literature	
Chapter Seven	
The Thermodynamics and Kinetics of Surface Phenomena	
Basic Thermodynamic Relationships for a Two-Dimensional Phase Interface	288
The Thermodynamic Relationships for a Spherical Interface	294
The Dependence of Surface Tension on Basic Thermodynamic Parameters	296
Energy of Formation of a Drop or Bubble	301
Surface Tension and Adsorption in Binary and Multi-Component Systems	304
The Thermodynamics and Kinetics of Wetting	311
Literature	318
Chapter Eight	
Mossbauer Effect	
Essence of the Mossbauer Effect	320
Parameters of the Mossbauer Spectrum	322
Technique of the Mossbauer Experiment and the Methodology for Determining	

5/6

USSR

ZHUKOVITSKIY, A. A., Physico-Chemical Bases of Metallurgical Processes, Moscow, 1973

the Parameters of Spectra	330
Some Applications	333
Literature	339
Chapter Nine	
The Use of Radioactive Isotopes in Metallurgy	
Schemes of Radioactive Decay	340
The Interaction of Radiation With a Substance	341
Methods for Registering Radioactive Radiation	347
The Range of Use of Radioactive Isotopes	359
Literature	376
Chapter Ten	
The Use of Chromatography in Metallurgy	
Literature	389

6/6

Reaction Kinetics

USSR

UDC 533.66.063

BOKSHTEYN, B. S., VOROB'YEV, Ye. M., KLINGER, L. M., FRIDMAN, Ye. M., and SHVINDLERMAN, L. S., Academy of Sciences USSR, Institute of the Solid Body Physics, Moscow, Institute of Steel and Alloys

"Osmotic Effect at the Border Diffusion"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 47, No 1, Jan 73, pp 145-149

Abstract: A model of boundary diffusion was developed with consideration of the formation of an effect analogous to the osmotic one. As a result, formation of dislocations takes place in the boundary zones which accelerates the diffusion inside the grain and with its motion carrying the atoms of the admixture. A self-adjusted system of equations was derived which describes the process under analysis.

1/1

BOKSHTEYN, B.S.

JPRS 50852
25 April 1973

INVESTIGATION OF STRUCTURING PROPERTIES OF
LAVES PHASES IN AUSTENITIC STEELS

UDC 669.98

[Article by B.S. Bokshtein (Academician, Academy of Sciences Georgian SSR),
M. L. Lomayevskaya, B. S. Bokshtein, and G. G. Surugua, Academy of Science
Georgian SSR, Institute of Metallurgy; Tbilisi, Gruzskhaya Akademiya
Nauk Gruzskoy SSR, Krasnaya, Vol 66, No 3, 1971, submitted 9 September 1971,
pp 632-636]

Intermetallic compounds present much interest for metal physics and applied physical metallurgy. On one side, the investigation of intermetallics includes a wide circle of structural and physical problems which include chemical bonding, electron structure, structure imperfections, etc. On the other side, it is not only to establish rapid progress in the technological use of intermetallics which add special properties to metallic alloys. In particular, for improving the properties of long-life mechanical properties at high temperatures in many cases (austenitic steels, nickel alloys) intermetallic strengthening turned out to be the most effective.

Phases forming between elements with a ratio of atomic diameters close to 1:2 comprise an important group of intermetallic phases; these phases have the structure of a Laves phase. Laves phases are close packed, corresponding approximately to the formula AB₂, and are usually crystallized with a hexagonal lattice two-layer alternation of close-packed planes (type AB₂AB₂) or with a cubic lattice and three-layer alternating planes (type AB₂AB₂). In austenitic heat-resistant steels, Fe and Ni, while Ni, Fe, Mo (and solid solutions among them), Cr, Ti and rare earths play the role of metal A most often.

It was assumed in [1] that bonding in Laves phases carries a metallic nature. As the reason for this the low costs of formation (several kilocalories per gram-atom) are

- 1 -

(1 - USSR - 1)

1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ELECTRON STRUCTURE OF IRON ATOMS IN TITANIUM BASE ALPHA AND BETA
SOLID SOLUTIONS: A MOSSBAUER STUDY -U-
AUTHOR-(02)-VOYTKOVSKIY, YU.B., BOKSHEYN, B.S.
COUNTRY OF INFO--USSR
SOURCE--FIZIKA METALLOV I METALLOVEDENIE, APR. 1970, 29, (4), 893-896
DATE PUBLISHED----APR 70
SUBJECT AREAS--PHYSICS, MATERIALS
TOPIC TAGS--ELECTRON STRUCTURE, TITANIUM IRON ALLOY, MOSSBAUER EFFECT,
ALLOY PHASE TRANSFORMATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/1811 STEP NO--UR/0126/70/029/004/0893/0896
CIRC ACCESSION NO--AP0129179
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129179

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELECTRON STATE OF THE FE ATOMS PRESENT IN TI BASE ALPHA AND BETA SOLID SOLUTIONS WAS STUDIED BY A METHOD BASED ON THE MOSSBAUER EFFECT, WITH SPECIAL REF. TO THE POSSIBILITY OF THERE BEING A CONNECTION BETWEEN THE ELECTRON STRUCTURE OF THE FE ATOMS AND THEIR PROPERTY OF STABILIZING THE BETA SOLID SOLUTION FORMED BY A POLYMORPHIC TRANSFORMATION AT 880DEGREESC. THE RESULTS INDICATED THAT THE FE,TI BOND IN THE BETA SOLUTION WAS MORE COVALENT THAN IN THE ALPHA SOLUTION, AND THIS PARTLY EXPLAINED THE BEHAVIOUR OF THE FE AS A BETA STABILIZER.

UNCLASSIFIED

USSR

UDC 669.1

BOKSHTEYN, B. S., and VOYTKOVSKIY, YU. B., Moscow Institute of Steel and Alloys

"Electron Structure of Iron Atoms in the Alpha- and Beta-Solid Solution of Titanium by the Mössbauer Method"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 893-896

Abstract: It is known that titanium undergoes polymorphous transformation at 882°C from the alpha-modification with an h.c.p. lattice to the beta-modification with a b.c.c. lattice. Alloying elements affect the temperature of the polymorphous transformation of which iron is the strongest beta-phase stabilizer. To determine if there was any relationship between the change of electron structure and atoms of titanium in an alloy and the effect of impurities on polymorphism the Mössbauer spectrum was employed to study this problem. Co⁵⁷ in stainless steel was used as a tracer element. Sample chemical composition and heat treatment mode are as follows:

- Sample 1 Ti-Fe (0.1% Fe)--diffusion saturation at 1000°C, furnace cooled
- Sample 2 Ti-Fe (4.5% Fe)--water quenched from 1000°C
- Sample 3 Ti-Fe (9.5% Fe)--water quenched from 1000°C
- Sample 4 Ti-Fe (9.5% Fe)--furnace cooled from 1000°C
- Sample 5 Ti-Fe-O₂ (10% Fe, 0.6% O₂)--water quenched from 1000°C

1/3

USSR

BOKSHTEYN, B. S., and VOYTKOVSKIY, YU. B., Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 893-896

Sample 6 Ti-Fe-Sn (10% Fe, 16% Sn)--furnace cooled, heated to 550°C, quenched in liquid nitrogen

Two graphs are presented which plot the Mössbauer adsorption spectrum as percentage probability of an effect vs. chemical shift in mm/sec. Sample 1 shows a positive chemical shift and sample 6 -- a negative shift, while all the other samples had both positive and negative chemical shifts. It should be mentioned that sample 1 contained only the alpha-phase while sample 6 contained only the beta-phase. The other samples had both alpha- and beta-phases.

In all the samples the spectrum of the beta-solid solution has a doublet which is caused in the Mössbauer spectrum by quadrupole splitting. If this splitting was the result of the formation of a field gradient from the action of encircling of substitution atoms in the absorbing nucleus, one would expect appearance of a doublet in alpha-titanium but not in the beta-titanium since the alpha-phase is b.c.c. and the beta-phase is h.c.p. Oxygen, forming an interstitial solid solution in titanium, may be caused by splitting in the cubic crystal due to rupture of the spherical symmetry of electrons in the iron atoms. Since the solubility of oxygen in alpha-titanium is high (up to 30 at%), but comparatively low in beta-titanium, distortions, which oxygen gives rise to in beta-titanium, should be greater.

2/3

USSR

BOKSHTEYN, B. S., and VOYTKOVSKIY, YU. B., Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 893-896

However, evaluations show that this singular effect is not adequate to explain the observed splitting.

Apparently, the advent of a doublet can be caused by the formation of configurations, containing both ions of oxygen and "impurity" vacancies associated with them. These pairs in crystals with a b.c.c. lattice can be very stable. The splitting occurring should be large in intensity; however, precise calculations are extremely difficult because there are no qualitative or quantitative data on disorder of wave functions of transition metals having defects.

3/3

USSR

UDC: 512.7

BOKSHTEYN, M. F.

"Directed Abel Categories"

Uch. zap. Mosk. gos. ped. in-ta im. V. I. Lenina (Science Notes of the Moscow State Pedagogical University imeni V. I. Lenin) No 277, 1971, pp 121-128 (from RZh--Matematika, No 4, 1972, Abstract No 4A374)

Translation: The set of objects $A_\alpha \in \mathcal{A}$ defined for all $\alpha \in I$, and morphisms $\varphi_{\beta}^{\alpha}: A_\alpha \rightarrow A_\beta$ defined for all $\alpha, \beta \in I$ such that $\alpha < \beta$, for which $\varphi_{\gamma}^{\alpha} \cdot \varphi_{\beta}^{\gamma} = \varphi_{\beta}^{\alpha}$ whenever $\alpha < \beta < \gamma$, is said to be the direct spectrum $[A_\alpha, \varphi_{\beta}^{\alpha}]_I$ (direct relative to the directed set I) of objects of the Abel category \mathcal{A} . The inverse spectrum is obtained reciprocally. The Abel category \mathcal{A} is said to be positively (or negatively) directed if, for every direct spectrum $[A_\alpha, \varphi_{\beta}^{\alpha}]_I$ (inverse $[A_\alpha, \varphi_{\alpha}^{\beta}]_I$), there exists a direct $\varinjlim [A_\alpha, \varphi_{\beta}^{\alpha}]_I$ (inverse $\varprojlim [A_\alpha, \varphi_{\alpha}^{\beta}]_I$). If $A = \varinjlim [A_\alpha, \varphi_{\beta}^{\alpha}]_I$, the canonical morphisms are designated $\varphi^\alpha: A_\alpha \rightarrow A$. If $[A_\alpha, \varphi_{\beta}^{\alpha}]_I$ and $[B_\alpha, \psi_{\beta}^{\alpha}]_I$ are two direct spectra with the same directing set I , the system of morphisms $\{\theta_\alpha\}$, $\theta_\alpha: A_\alpha \rightarrow B_\alpha$, $\alpha \in I$ is

• USSR

BOKSHTEYN, M. F., Uch. zap. Mosk. gos. ped. in-ta im. V. I. Lenina, No 277, 1971, pp 121-123

said to be compatible if $\theta_\alpha \psi_\beta^\alpha = \varphi_\beta^\alpha \theta_\beta$ for any $\alpha, \beta \in I, \alpha < \beta$. The compatible system of morphisms $\{\theta_\alpha\}_\alpha$ naturally induces the uniquely determined morphism $\theta: A \rightarrow B$, $A = \varinjlim [A_\alpha, \varphi_\beta^\alpha]_I$, $B = \varinjlim [B_\alpha, \psi_\beta^\alpha]_I$. The positively directed Abel category \mathcal{A} is said to be exact if for any direct spectra $[A_\alpha, \varphi_\beta^\alpha]_I$, $[B_\alpha, \psi_\beta^\alpha]_I$, $[C_\alpha, \omega_\beta^\alpha]_I$ and compatible systems of morphisms $\{\xi_\alpha\}$ and $\{\eta_\alpha\}$, $\xi_\alpha: A_\alpha \rightarrow B_\alpha$, $\eta_\alpha: B_\alpha \rightarrow C_\alpha$, the accuracy of the induced sequence $A \xrightarrow{\xi} B \xrightarrow{\eta} C$ is derived from the accuracy of the sequence $A_\alpha \xrightarrow{\xi_\alpha} B_\alpha \xrightarrow{\eta_\alpha} C_\alpha$, $\alpha \in I$. The following characteristics of the accurate, positively directed Abel categories are proved: 1. For each direct spectrum $[A_\alpha, \varphi_\beta^\alpha]_I$ for which all φ_β^α are monomorphisms, the canonical morphisms $\varphi^\alpha: A_\alpha \rightarrow A$ will also be monomorphisms; 2. Infinite, direct sums of the objects exist; 3) The structures of the subobjects and the factor-objects of an arbitrary object are complete.

The accurate negatively directed categories with reciprocal characteristics are reciprocally determined.

An example of the accurate positively directed category is the category of the Abel groups; an example of the negatively directed category is that of bicomact topological groups. A. Liv-

2/2

USSR

UDC 669.25:669.017.3

BOKSHTEYN, S. Z., LYUTTSAN, V. G., RAZUMOVSKIY, I. M., SVETLOV, I. L., and FISHMAN, Yu. M., All-Union Scientific Research Institute of Aviation Materials

"Martensitic Transformation in Cobalt Whiskers"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 6, Jun 72, pp 1277-1284

Abstract: An x-ray investigation was made of the phase composition and dislocation structure of cobalt whiskers grown by CoBr_2 reduction at 720-760°C. The structures of whiskers in which an incomplete martensitic transformation occurred and the structures of whiskers with mixed phase composition are imperfect. Dislocations with the Buerger vector $b = 1/3 \langle 111 \rangle$ lying in planes parallel to the habitus plane in transformation were found in crystals of these whiskers. In whiskers with a mixed phase composition, the dislocations are concentrated in regions retaining the high-temperature modification with a centered cubic structure. Obviously, martensitic transformations can occur in ideal crystals, but structural defects prevent the transformation development according to the martensitic mechanism. Three figures, fourteen bibliographic references.

1/1

- 58 -

USSR

UDC 669..5:539.2/4

BOKSHTEYN, Samuil Zeylikovich

Stroyeniye i svoystva metallicheskikh splavov (Structure and Properties of Metal Alloys), Moscow, "Metallurgiya" Press, 1971, 496 p., 221 illustrations, 49 tables, 441 bibliographic references, 6300 copies printed.

Translation of Annotation:

The book outlines the structure of solids and processes leading to phase and structural changes as well as qualitative and quantitative relationships between metal structures and properties. New technologies and related problems (interaction of radiation with matter, sublimation process, filamentary crystals, etc.) are discussed. The book is intended for scientists and may be of use to students and graduate students of metallurgical and machine-construction, higher educational institutions, associates of scientific research institutes and plant laboratories--specialists in metallurgy and physics of metals.

1/7

- 53 -

USSR

BOKSHTEYN, Samuil Zeylikovich, Stroyeniye i svoystva metallicheskih splavov, Moscow, "Metallurgiya" Press, 1971.

Translation of TABLE OF CONTENTS	3
FOREWORD	5
Ch. I. Metallic Bond and Its Effect on Properties	9
Nucleus-Electron Interaction in the Atom	9
Electron Structure of the Atom	12
Features of Electron Structure of Transition Elements	14
Interatomic Bond in Molecules	16
Principal Types of Bonds in Solids	19
Metallic Bond	23
Features of Electron Structure and Bond in Transition Metals	27
Electron Structure and Properties of Metals	28
Ch. II. Ideal and Real Structures of Metals	36
Crystal Structure	36
Basic Types of Metal Structures and their Characteristics	39

2/7

USSR

BOKSHTEYN, Samuil Zeylikovich, Stroyeniye i svoystva metallicheskih splavov, Moscow, "Metallurgiya " Press, 1971.

	Structural Defects	43
	Point Defects	44
	Line Defects	71
	Surface Defects	72
Ch. III.	Diffusion in Solids	86
	Diffusion Laws	87
	Diffusion Coefficient Measurement	89
	Mechanism of Diffusion Processes	92
	Thermodynamics and Diffusion	93
	Diffusion in Diluted Solid Solutions	106
	Heterodiffusion	112
	Structural Defects and Diffusion	118
	Autoradiography of the Shape of Diffusion Flows in Metals Using Electron Microscopy	136
Ch. IV.	Theory of Phase Formation	141
	Phase Characteristics	141
	Certain Concepts of the Statistical Theory of Solutions	152

3/7

- 54 -

USSR

BOKSHTEYN, Samuil Zeylikovich, Stroyeniye i svoystva
metallicheskikh splavov, Moscow, "Metallurgiya " Press, 1971.

	Solid Solutions	154
	Ordered Solid Solutions	159
	Chemical Components	161
	Kinetic Conditions for Transition of a System From One State to Another	170
Ch. V.	Polygonization	183
	General Considerations	183
	Classification of Processes Occurring in Heat- ing Deformed Metals	184
	Formation of a Polygonization Structure	186
	Effects of Various Factors on Polygonization	190
	Polygonization in Various Metals	192
	Polygonization in Polymorphous Transformations	195
	Stability of a Polygonized Structure and its Effect on Properties	197
	Recrystallization and Diffusion	201
	Effect of "Heredity"	205

4/7

USSR

BOKSHTEYN, Samuil Zeylikovich, Stroyeniye i svoystva metallicheskih splavov, Moscow, "Metallurgiya" Press, 1971.

Ch. VI.	Aging	216
	Spinoidal Decay and Nucleation	216
	Sequence of Aging	222
	Characterization of Structural States at Various Stages of Aging	224
	Effect of Structural Defects	230
	Effect of the Third Element	241
	Phase Coagulation in Aging	242
	Carbide Coagulation in Tempering	244
	Aging of Interstitial Solutions	248
Ch. VII.	Martensite Transformation	252
	Transformation Features	252
	Essence of Transformation	260
	Effect of Structural Defects	264
	Martensite Transformation Crystallography	265
	Composition Effect and Austenite Stabilization	268
	Fine Structure of Martensite	270
	Martensite State at Low Temper	273
Ch. VIII.	Means of Attaining High Strength in Materials	279
	Theoretical Strength of Solids	280
5/7	Strength of Real Crystals	282

USSR

BOKSHTEYN, Samuil Zeylikovich, Stroyeniye i svoystva
metallicheskikh splavov, Moscow, "Metallurgiya" Press, 1971.

	Crystal Lattice Resistance to Dislocation	
	Mobility	286
	Hardening Due to Barriers	289
	Thermal Stability of Barriers	326
	Martensite Structure of Steel and Strength	328
	Chemical and Structural Inhomogeneity and Mechanical Properties of Titanium Alloys	340
	High Strength and Composites.	350
	Filamentary Crystals	353
	Hardening Mechanism of Composites Reinforced with Continuous and Short Fibers	369
	Materials Produced by Unidirectional Crystallization	376
Ch. IX.	Heat Resistance	379
	Creep	379
	Structural Changes with Creep	382
	Diffusion Creep	384
	Diffusion and Heat Resistance	386

6/7

USSR

BOKSHTEYN, Samuil Zeylikovich, Stroyeniye i svoystva metallicheskih splavov, Moscow, "Metallurgiya" Press, 1971.

	Structure and Heat Resistance	393
	High-Temperature Failure	399
Ch. X.	Behavior of Materials in High-Vacuum Conditions	413
	General Considerations	413
	Metal Sublimation Processes	416
	Sublimation Study Methods	425
	Factors Affecting Sublimation	428
Ch. XI.	Radioactivity and Isotope Uses in General Metallurgy	444
	Elementary Particles	444
	Radioactive Phenomena	450
	Potential Uses of the Mossbauer Effect	460
	Radioactive Isotope Application as Labelled Atoms	466
	Autoradiographic Studies of Metal Alloys	467
	Autoradiography	472
	Study of Interstitial Impurity Distribution in Metals by Electron Autoradiography	474
References		483

7/7

.. 56 ..

USSR

UDC 548.0:539.26

BOKSHTEYN, S.Z., LUYTSAU, V.G., et al

"The Phase Composition of Thread-Like Cobalt Crystals"

Moscow, Kristallografiya, Vol. 16, No 2, pp 440-441

Abstract: The low-temperature state of thread-like crystals of cobalt produced by high-temperature polymorphic conversion at 720°C by hydrogen reduction of CoB_2 is studied. The crystals measure 10-100 μ in the transverse direction and several mm in length. In most specimens, the direction of the axis was irrational, i.e., did not correspond to the primary crystallographic directions. The investigations showed that there are three types of crystals as concerns type of phase composition. The first type includes crystals in which the polymorphic conversion has continued to completion, and they contain no traces of the residual cubic phase. The second type includes thread-like crystals in which the polymorphic conversion has not been completed. The third type includes thread-like crystals which have undergone no polymorphic conversion.

1/1

- 82 -

USSR

UDC 669.295:548.526

BOKSITEYN, S. Z., KISHKIN, S. T., and NITSKIY, I. M.

"Effect of Fine Structure Occurring in Titanium During the Polymorphic (Alpha \rightleftharpoons Beta) Transformation on Diffusion Mobility"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 5, Sep/Oct 71, pp 210-215

Abstract: Increased-purity titanium was used in the study (impurities: Fe-0.045%, H₂-0.0044%, O₂-0.188%, N₂-0.0026%, and Si and C not detected). Test specimens made of titanium sheet were strips 10 x 20 x 1.8 mm in size. Heat treatment of the specimens was as follows: annealing for 1 hour at approximately the temperature at which the diffusion coefficient was determined in order to preclude change in grain size during diffusion. To obtain maximum defect density, the specimens were then annealed in vacuum in the alpha-state at 800° for 115 hr. Seven specimens were subjected to varying treatments: Pre-annealing and diffusion annealing at different temperatures, in which the temperature of polymorphic transformation was exceeded by a different number of degrees in most cases. Structural imperfections produced during the polymorphic (alpha \rightleftharpoons beta) transformation can be the principal cause of accelerated diffusion in titanium. The defect state of the structure of the initial phase was inherited a new phase formed during the (alpha \rightarrow beta) - transformation. It was shown that in a repeated transition of interfaces (alpha \rightarrow beta \rightarrow alpha), the diffusion coefficient of Sn¹¹³ titanium increased by a factor of 11.5.

1/2

USSR

BOKSHTEYN, S.Z., et al, Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 5, Sep/Oct 71, pp 210-215

Several investigations showed that the alpha-phase of titanium has an extremely defect-intense crystalline structure with high density of structural imperfections. When the beta phase is produced in the (alpha \rightarrow beta) - transformation, it "inherits" the alpha-phase defects. In addition, new imperfections continue to be formed at temperatures somewhat higher than the critical temperature of the phase transition. This "heredity" is very stable and could not be eliminated by preannealing either at 950° or at 1100°. Analysis of electron-microscopic photographs of a thin foil with a transmitted beam, and study of x-ray deflection patterns showed that after the (beta \rightarrow alpha) - transformation following quenching, the concentration of linear imperfections is very high. Thus, diffusional mobility is reduced. Preannealing at the premelting point (1550°) for 25 hours considerably reduces the density of defects and thus reduces the diffusion coefficient from $9.1 \cdot 10^{-10}$ to $0.24 \cdot 10^{-10}$ cm²-sec⁻¹, that is, by a factor of 38.

2/2

- 61 -

USSR

UDC 547.783:543.422.4.6

USAYEVICH, YU. YA., BOKSINER, YE. I., and FEL'DMAN, I. KH., Leningrad Chemical-Pharmaceutical Institute

"Imidazolones. IV. Aminomethylation and Phosphorylation of Imidazolone-4(5) 2.5(4)-Substituted Derivatives"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 71, pp 804-806

Abstract: Imidazolones-4(5) substituted in 2,5(4) positions do not react with formaldehyde according to the Knoevenagel reaction, but in presence of equimolar quantity of dimethylamine react easily to give Mannich reaction products. A mixture of 1.37 g of 2-(3',4'-dimethoxyphenyl)-5(4)-methylimidazolone-4(5), 1 ml 20% aqueous dimethylamine, 0.45 ml of 36% aqueous formaldehyde, and 7 ml acetic acid is heated at 60° to achieve solution, then left to stand for 24 hrs. The mixture is treated with NaOH, filtered and the product -- 2-(3',4'-dimethoxyphenyl)-5(4)-methyl-5(4)-dimethylaminomethylimidazolone-4(5), m.p. 138-139° is recrystallized from a benzene-ether mixture. Treating 2,4(5)-substituted imidazolones-4(5) with phosphorus oxychloride gives phosphorylation products. To 1.37 g 2-(3',4'-dimethoxyphenyl)-5(4)-isobutylimidazolone-4(5) in 5 ml dry benzene, 0.3 ml dimethylaniline is added, the mixture is cooled and 1.5 ml phosphorus oxychloride is added dropwise, followed by a 3 hrs reflux.
1/2

USSR

USAYEVICH, YU. YA., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 6,
Jun 71, pp 804-806

Upon cooling, tri-(2-(3',4'-dimethoxyphenyl)-5-isobutyl-4-ketoinidazolyl-1)
phosphine oxide, m.p. 298-300° precipitates.

2/2

- 20 -

1/2 014 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--MULTISTEP. PHOTOOXIDATION OF BACTERIOCHLOROPHYLL. FLUORESCENCE AND
ABSORPTION SPECTRA OF INTERMEDIATE FORMS -U-
AUTHOR--KRASNOVSKIY, A., DROZDOVA, N., BOKUCHAVA, E. *B*
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(2) 464-7
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--FLUORESCENCE, ABSORPTION SPECTRUM, CHLOROPHYLL, PIGMENT,
ASCORBIC ACID, BACTERIA, PYRIDINE, PHOTOOXIDATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--1985/1798 STEP NO--UR/0020/70/190/002/0464/0467
CIRC ACCESSION NO--AT0101845
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AT0101845

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ABSORBANCE SPECTRA WERE REPORTED FOR PHOTOXIDIN. OF BACTERIOCHLOROPHYLL BY O BENZOQUINONE IN MEPM. THE RESULTS SUGGEST THAT THE REACTION CONSISTS OF A 2 STEP 2 ELECTRON OXIDN. TO CHLOROPHYLL AND PROTOCHLOROPHYLL LIKE SUBSTANCES WHEN THE REACTION EMPLOYS O BENZOQUINONE. ADDN. OF PHNHNH SUB2 TO THE OXIDIZED MATERIAL DID NOT REGENERATE THE PIGMENT IN THE DARK BUT ILLUMINATION DID LEAD TO THE REVERSE REACTION. ASCORBIC ACID IN PYRIDINE LED TO MINOR REVERSION IN THE DARK AND UP TO 10PERCENT REVERSION IN LIGHT. ADDN. OF O BENZOQUINONE AND ASCORBIC ACID AND SUBSEQUENT ILLUMINATION OF BACTERIOCHLOROPHYLL RESULTED ONLY IN THE USUAL PHOTOREDN. TO FORM THE RED PIGMENT.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--GRAPE POLYPHENOLS -U-
AUTHOR-(04)-BOKUCHAVA, M.A., KNYAZEVA, A.M., VALUYKO, G.G., FILIPPOV, A.M.
COUNTRY OF INFO--USSR *B*
SOURCE--VINODEL. VINOGRAD. SSSR 1970, 30(1), 7-11
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--AGRICULTURE CROP, FOOD ANALYSIS, BENZENE DERIVATIVE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0659 STEP NO--UR/0505/70/030/001/0007/0011
CIRC ACCESSION NO--AP0117884
UNCLASSIFIED

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010

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117884

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE POLYPHENOLIC COMPLEX OF RIPE GRAPES WAS COMPOSED OF SIMPLE CATECHOLS. THE AMT. OF GALLATES WAS INSIGNIFICANT. THE PROPOSED METHOD FOR THE DETN. OF TOTAL POLYPHENOLIC SUBSTANCES IN GRAPES (TANNINS FROM SEEDS) WAS RELIABLE AND MINIMIZED THE OXIDN. OF PHENOLS. GRAPE SEEDS (150 G) WERE PULVERIZED, MIXED WITH DISTD. WATER (370 ML), AND EXTD. ON A WATER BATH AT 80DEGREES FOR 5 MIN AFTER ADDING 10PERCENT K SUB2 S SUB2 O SUB5 TO PREVENT OXIDN. TANNINS WERE THEN TAKEN UP IN ETJAC, DRIED WITH NA SUB2 SO SUB4, AND CONCD. UNDER VACUUM AT 35-40DEGREES. TO PPT. THE TANNINS, CHCL SUB3 WAS ADDED; THE PPT. WAS SEPD. ON A SINTERED GLASS FILTER AND WASHED WITH CHCL SUB3. FACILITY: INST. BIOKHM. IM. BAKHA, MOSCOW, USSR.

UNCLASSIFIED

USSR

BOKUN, I. A., YEPANOV, Yu. G.

"Heat Exchange and Hydrodynamics of the Pulsating Bed in a Conical Apparatus with Tangential Gas Inlet"

Teplo. i Massoperenos. T. 5, Ch. 2 [Heat and Mass Transfer, Vol 5, Part 2 -- Collection of Works], Kiev, Nauk. Dumka Press, 1972, pp 28-33, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 B1036 by V. A. Kernerman).

Translation: Results are presented from studies of the hydrodynamics of a bed and heat exchange between the heating surface and pulsating bed in a conical apparatus with tangential gas input. The aperture angle of the cone in an apparatus with intake diameter of 27.5 mm and outlet diameter 179 mm is 40° , the height of the conical section is 200 mm. Gas is fed in tangentially through two opposite apertures. Sand was used with equivalent diameters of 0.325 and 0.75 mm. The frequency of pulsations of the gas flow was 0.5, 1.0, 1.5 and 2.0 Hz. The total resistance of the gas distributor device and bed decreases with decreasing pulsation frequency; at the same time, the resistance of the gas-distributing device is practically independent of frequency. The dependence of the heat exchange factor on pulsation frequency has a maximum: the nature of its dependence on filtration rate is identical for pulsating and constant gas feed. In the cross
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USSR

BOKUN, I. A., YEPANOV, Yu. G., Teplo. i Massoperenos. T. 5, Ch. 2, Kiev, Nauk. Dumka Press, 1972, pp 28-33.

section, the heat exchange factor passes through a maximum with increasing distance from the axis of the apparatus. On the axis, the heat exchange factor in the pulsating layer is higher than in a bed with constant feed.

2/2

- 41 -

USSR

UDC 535.51

BOKUT', B. V. and SOTSKIY, B. A.

"A Possibility of Controlling the Rotational Angle of the Radiation Polarization Plane"

Minsk, Zhurnal Prikladnoy Spektroskopii, November 1973, pp 926-928

Abstract: This theoretical paper considers the problem of the propagation of an electromagnetic field in an optically active anisotropic medium under the action of an external constant or low-frequency electric field. The effect of a crystal of the 4 2m class in rotating the plane of polarization of such a field is examined, and it is found that in the general case two elliptically polarized waves are propagated in the crystal. The authors conclude that it is possible to control the polarization through electrogyration. It is noted that similar calculations can be used for crystals of other classes with isotropy at a definite wavelength.

1/1

- 61 -

USSR

BOKUT', B. V.; SERDYUKOV, A. N.; FEDOROV, F. I. (Institute of Physics, Belorussian Academy of Sciences)

"Phenomenological Theory of Optically Active Crystals"

Moscow, Kristallografiya; September-October, 1970; pp 1002-6

ABSTRACT: The authors derive equations for an electromagnetic field in optically active crystals which are distinguished by the fact that from them is obtained the law for the conservation of energy, in which the energy density of the field has a form different from $ED + HB$, while the vector of the energy flow is expressed in the ordinary manner. The general equation of the normals for planar waves propagated in such media is derived, and several of its special forms are considered.

The article includes 24 equations. There are 10 bibliographic references.

1/1

1/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--MAINTENANCE OF ELECTROMAGNETIC RADIATION PULSE MOMENT IN OPTICALLY
ACTIVE MEDIA -U-
AUTHOR-(02)-BOKUT, B.V., SERDYUKOV, A.N. 13
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKLAD. SPEKTROSK, (USSR), VOL. 12, NO. 1, P. 139-41 (JAN.
1970)
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--TENSOR, ELECTROMAGNETIC RADIATION, ELECTROMAGNETIC PULSE,
MAGNETIC MOMENT, OPTIC MATERIAL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1998/1730 STEP NO--UR/0368/70/012/001/0139/0141
CIRC ACCESSION NO--AP0122060
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0122060

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WITHIN THE FRAMES OF THE LAGRANGE
FORMALISM, THE TENSOR OF ENERGY PULSE OF THE ELECTROMAGNETIC FIELD IN AN
OPTICALLY ACTIVE MEDIUM IS OBTAINED. THIS ALLOWS THE EXPRESSION OF THE
ROTATING MOMENT ACTING UPON THE ANALYSED MEDIUM TO BE GENERALIZED.

UNCLASSIFIED

USSR

BOLAROVICH, M. P., PARKHOMENKO, E. I., BAYUK, Ye. I.

"The Dependence Between Electrical and Elastic Parameters of Rock"

Fiz. Svoystva Gorn. Porod Pri Vysok. Termodinam. Parametrakh [Physical Properties of Rock at High Thermodynamic Parameters -- Collection of Works], Kiev, Nauk Dumka Press, 1971, pp 66-69, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 V853 by I. F. Zharikov).

Translation: The relationship of conductivity of rock with propagation velocity of elastic waves is studied. It is demonstrated that for granite-diorite rocks, the change in rock composition from granite to diorite causes an increase both in longitudinal wave velocity and in conductivity. Studies of the influence of the structural factor are performed on a group of gabbro-basalts, for which the areas of curves showing dependence of longitudinal wave velocities on pressure and the range of values of conductivity at 200° are presented.

1/1

USSR

UDC 621.317.7.087.92-932

BOLBOT, A. A., IL'NITSKIY, L. Ya.

"Transistorized Multiplier-Divider"

Sb. Nauch. tr. Kiev. In-t Inzh. Grazhd. Aviatsii [Collected Scientific Works of Kiev Institute of Civil Aviation Engineers], 1970, No 5, pp 101-102, (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel' naya Tekhnika, No 11, 1971, Abstract No 11 A181 by N. S.).

Translation: The principle of design of transistorized multiplier-dividers operating in a circuit with a grounded base is studied. A block diagram of a multiplier-divider for multiplication of two variables fixed by continuous currents and a schematic diagram of a 4-square multiplier-divider device are presented. The peculiarities of the operation of the devices are noted. 2 Figures; 2 Biblio. Refs.

1/1

USSR

UDC 576.858.5.095/.097

KOVALEVA, T. P., YURLOVA, T. I., BOLDASOV, V. K., LYSOV, V. V., RUDENKO, L. G., AKSENOV, O. A., and SELIVANOV, A. A., All Union Scientific Research Institute of Influenza, Ministry of Health USSR, Leningrad

"Biological Properties of Two Strains of Adenovirus Serotype 4"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 71, pp 700-703

Abstract: A comparative study of normal and attenuated strains of adenovirus serotype 4 revealed a number of significant differences.. While at the optimum culture growth temperature of 37°C, both strains reproduce at the same rate, at 28°C the attenuated strain proliferates much faster and at 40°C much slower than the parent strain. While both strains are almost equally sensitive to human leukocytic interferon, the attenuated strain is significantly more sensitive to nonspecific thermolabile inhibitors, and has a much higher interferon-stimulating and interference activity and a much lower cytotoxic activity. After experimental inoculation of human subjects, both strains cause a rapid, fourfold increase in serum antibody concentration. However, the disease induced by the attenuated strain is considerably less severe and of shorter duration than that induced by the parent strain.

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USSR

B 15

BUDAGOV, YU. A., VINGRADOV, V. B., VOLOD'KO, A. G., ~~DZHELEPOV, V. P.~~ KIRILLOV-
 UGRYUMOV, V. G., Kladnitskiy, V. S., KUZNETSOV, A. A., LOMAKIN, YU. F., MEL'NIKOVA,
 N. N., PONOSOV, A. K., FLYAGEN, V. B., SHLYAPNIKOV, P. V., MARTINSKA, G. (1),
 BOLDEA, V. (2), MIKHUL, A. (2), MUMUYANU, D. (2), PONTA, T. (2), FELEA, S. (2),
 and CHADRAA, B. (3), Joint Institute of Nuclear Research; (1) University imeni P.
 I. Shafarik, Koshitse, Czechoslovak SSR; (2) Institute of Atomic Physics, Bucharest,
 Romania; (3) Physics Institute of the Academy of Sciences Mongolian People's Repub-
 lic, Ulan-Bator

"Study of the Mass Spectrum of a $\Lambda\bar{K}$ -System in π^-p -Interactions at 4 and 5.1 GeV/c"
 Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 11, No. 1,
 5 Jan 70, pp 31-35

Abstract: The results of a study of the spectrum of the effective masses of a
 $\Lambda\bar{K}$ -system are reported. The spectrum was obtained in investigating π^-p -interactions
 in a 24-liter and a 1-meter propane bubble chamber irradiated in π -meson beams of
 the proton synchrotron of the Joint Institute of Nuclear Research with pulses of
 4 and 5.1 GeV/c, respectively. An investigation of the structure of the effective
 mass spectrum of a $\Lambda\bar{K}$ -system was of interest from the viewpoint of observing new

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USSR

BUDAGOV, YU. A., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 11, No. 1, 5 Jan 70, pp 31-35

resonances with zero strangeness and the decays of different isobars via the channel $\Lambda^* \rightarrow \Lambda + K$, to determine the relative probabilities of these decays. Approximately 230,000 photographs were analyzed for each bubble chamber. The effective mass spectra of ΛK^0 combinations for events in which the decays of a Λ -hyperon and a K^0 -meson were simultaneously recorded in the chamber are graphed. The graphs show a considerable excess in the number of events above the background in the mass region 1.61-1.96 GeV/c². It is shown that this anomaly is not associated with the reflection of known resonances Y^* (1385) and K^* (890) in the ΛK^0 -spectrum. The total excess in the number of events over the background in the mass interval 1.61-1.96 GeV/c² was 114 ± 13 . The experimental data verify the existence of two resonances with masses about 1685 and 1935 MeV/c² and widths of the order of 150 MeV/c². It is concluded that the anomaly observed in the effective mass spectrum of ΛK can be explained only by the decay of the isobar S_{11} (1710), P_{11} (1750) via the channel $\Lambda^* \rightarrow \Lambda + K$ or by the existence of a new resonance with mass about 1685 MeV/c², as the data of R. Erbe et al indicate.

2/2

- 132 -

1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--EXPERIMENTAL EVALUATION OF THE NATURE OF ROTATIONAL BROWNIAN MOTION
BASED ON THE WIDTH OF VIBRATIONAL BAND CONTOURS IN MOLECULAR SPECTRA -U-
AUTHOR--(02)-BOLDESKUL, A.YE., POGORELOV, V.YE.

COUNTRY OF INFO--USSR

B

SOURCE--OPT. SPEKTROSK. 1970, 28(3), 462-4

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BROWNIAN MOTION, ACETONE, PYRIDINE, CHLOROBENZENE, SPECTRUM,
DIPOLE MOMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--2000/1129

STEP NO--UR/0051/70/028/003/0462/0464

CIRC ACCESSION NO--AP0124784

UNCLASSIFIED

222 010

UNCLASSIFIED

PROCESSING DATE 100070

CIRC ACCESSION NO. 140125/09

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE CHARACTER OF THE RELATIONAL BROWNIAN MOTION OF ACETONE, PYRIDINE, AND CHLOROBENZENE MOL. IN LIQS. WAS ESTD. BY COMPARING THE WIDTHS OF THE IR BANDS WITH THOSE OF THE RAMAN LINES. FOR MOL. WITH ORIENTATION RELAXATION TIMES OF THE MOL. DIPOLES OF 10 PRIME NEGATIVE11 TO PRIME NEGATIVE12 SEC., THE BROWNIAN REORIENTATIONS HAVE A DIFFUSION CHARACTER.

UNCLASSIFIED

USSR

UDC 535.34.543.42.541.8

~~BOLDESKUL, I. YE.~~, YEGOROV, YU. P., MAKOVETSKIY, YU. P., RYL'TSEV, YE. V.,
and FESHCHENKO, N. G., Institute of Organic Chemistry, Academy of Sciences
USSR, Kiev

"Spectroscopical Investigation of the Reaction Mechanism of Phosphonium
Salts with Carboxylic Acids in Solutions"

Kiyev, Teoreticheskaya i Eksperimental'naya Khimiya, Vol 9, No 3, May-Jun
73, pp 350-356

Abstract: Intermolecular reactions of quaternary phosphonium salts

$(C_8H_{17})_4P^+Hal^-$ ($Hal^- = I^-, Br^-, Cl^-$) with proton donors stronger than alcohols
-- the carboxylic acids ($RCOOH$, $R = CH_3, CCl_3, CF_3$) were investigated in
 CCl_4 solutions by means of IR spectroscopy. It has been shown that the
reaction occurs through the formation of a complex with the H-bond, and that
it is irreversible. A mechanism for this reaction has been proposed,
according to which a halide anion of the salt is exchanged for a carboxylate
anion. Since the rate of this process is symbatic with the proton donating
1/2

USSR

UDC 535.34:543.42:541.8

BOLDESKUL, I. E., YEGOROV, Yu. P., MAKOVETSKII, Yu. P., RYL'TSEV, E. V.,
FESHCHENKO, N. G. (Institute of Organic Chemistry, UkrSSR Academy of
Sciences, Kiev)

"Inter-ion Oscillations in Phosphonium Salts Studied With Long-Wave IR
Absorption Spectra"

Kiev, Teoreticheskaya i Eksperimental'naya Khimiya, Vol 9, No 5, Sep-Oct
73, pp 668-672

Abstract: Long-wave IR spectroscopy was used to study the properties of
the inter-ion bond of tri- and tetra-alkyl phosphonium halides. Dipole-
dipole association of ion pairs -- phosphonium salts caused a decrease in
the elasticity of the cation-anion bond. In tertiary phosphonium salts
this bond was less strong than in the corresponding ammonium salts,
probably because the P-H group is a weaker proton donor to the H bond
than is the N-H. The frequencies of the γ_G cation-anion oscillation
in the quaternary phosphonium and ammonium salts were the same within
the limits of error of the determination.

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- 32 -

UDC 547.26.127

USSR

BOROVIKOV, YU. YA., RYL'TSEV, YE. V., BOLDESKUL. I. YE., FESHCHENKO, N. G., MAKOVETSKIY, YU. P., YEGOROV, YU. P., Institute of Organic Chemistry, Kiev, Academy of Sciences Ukrainian SSR

"Dielectric Study of Trialkylphosphine Derivatives"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70,
pp 1957-1962

Abstract: A study of the interaction between the molecules of trialkylphosphine oxides and their analogues in solutions by the method of dielectric permeability is reported. Trialkylphosphine oxides, trioctylphosphine sulfide, -selenide, -telluride and tetraalkylphosphine iodide were investigated. It was determined that the dipole moments and atomic polarizations of the trialkylphosphine oxides depend on the length of the hydrocarbon chain. The dipole moments of trioctylphosphine oxide, -sulfide, -selenide, and -telluride were identical within experimental error. Tri-octylphosphine oxide and tetraoctylphosphine iodide are associated according to the antiparallel type in solvents of low dielectric
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USSR

BOROVIKOV, YU. YA., et al, Zhurnal Obshchey Khimii, Vol 40, No 9,
Sep 70, pp 1957-1962

permeability. The degree of association of trioctylphosphine oxide is higher in carbon tetrachloride than in benzene, and in chlorobenzene, trifluorobenzene, and acetone it is monomeric. The association of tetraoctylphosphine iodide persists even in solvents with high ϵ ; their dipole moments are close to values corresponding to complete charge transfer from P to I.

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- 80 -

USSR

UDC 669.71.472(088.8)

ZAYTSEV, V. N.; BOLDIN, V. V., and SMIRNOVA, T. V.

"Device for Extraction and Replacement of Anode Rods in an Aluminum Electrolyzer With Top Application of Current"

USSR Author's Certificate No 254105, Filed 1/07/65, Published 17/03/70
(Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract No 2 G150 P)

Translation: To increase the reliability and service life of the device, and also decrease the weight and height of the bridge crane, the mechanism for lifting the rod is made up of a system of levers articulated to the carriage and moved in the horizontal and vertical planes by hydraulic cylinders, while the rotating mechanism is clamped directly to the rod head and connected to the rod clamp mechanism. The electric motor of the mechanism for rotation of the rod is located coaxially with a planetary reducer, the output shaft of which is equipped with a clamp for connection to the rod. The mechanism for contacting the clamps with the rod is equipped with a telescopic shaft, a set of bevel gears, and a mechanical switch, moved in the horizontal plane by a hydraulic cylinder.

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- 7 -

BOLDOV, V. A.

APRS 56, 499
14 JULY 72

26

CHANGE IN SOME SEISMOCARDIOGRAPHIC INDICES DURING 120-DAY
HYPOKINESIA

Article by V. A. Boldov, Akhmed Akhmedov, Voprosy Kosmonavtiki i Meditsiny (Cosmonautics and Space Biology and Medicine), Moscow, 1971, pp 49-50

Seismocardiography (SCG) is one of the methods making it possible to register the mechanical manifestations of cardiac activity (R. N. Bayevskiy and V. V. Borkhanko).

This paper presents data from a study by the SCG method during 120-day hypokinesia. The participants in the experiment were ten healthy males in the age group from 22 to 40 years. The subjects were divided into three groups: first -- control group (four men), second -- (three men), who during the period of hypokinesia received plavirin and DUCSA, and a third group (three persons), who received metanol. The SCG was studied each ten days at the same time of day.

Analysis of the results revealed that in the first group the electric systole increased by the fourth week from 0.32 to 0.38 sec and decreased by the end of the experiment to 0.30 sec. In subjects in the second group the electric systole did not significantly change. In subjects in the third group the change in the electric systole had a wavelike character, decreasing by the fourth week from 0.35 to 0.33 sec, again increasing by the end of the experiment to 0.40-0.38.

The mechanical systole for the subjects in the first group increased by the fifth week from 0.36 sec to 0.39-0.40 sec and decreased to 0.36 sec by the end of the experiment. In the subjects in the second group, beginning with the fourth week, there was an increase in the mechanical systole to 0.43 sec, which persisted at this level to the end of the experiment. In the third group, by onset of the third week, the mechanical systole attained 0.42 sec; later it had a tendency

Pharmacology and Toxicology

USSR

UDC 612.817.1

SEVERIN, S. Ye., BOLDYREV, A. A., and PETUKHOV, V. B., Moscow State University
imeni M. V. Lomonosov

"Presynaptic Effect of Imidazole and Carnosine"

Moscow, Doklady Akademii Nauk SSSR, Vol 194, No 2, 1970, pp 471-474

Abstract: A study was made of the effect of imidazole (20 mM) and carnosine (10 and 20 mM) on the frequency and amplitude of miniature end-plate potentials (MEP) derived from electrodes implanted in *Rana temporaria* M. cutaneous pectoris in Ringer's solution and in the presence of KCl or d-tubocurarine. The addition of imidazole to the solution increased the MEP frequency by a factor of 1.5-2 and reduced the mean amplitude by 15 to 30%. The increase in frequency was particularly marked after potassium depolarization. After the preparation was washed with Ringer's solution, the frequency and, somewhat later, the mean amplitude returned to their normal levels. Carnosine in either concentration increased the MEP frequency by a factor of three, but reduced the mean amplitude only slightly. Addition of imidazole and carnosine after d-tubocurarine increased the MEP frequency but did not prevent the amplitude from decreasing. The increase in quantum composition of the end-plate potentials brought about by imidazole and carnosine is direct evidence of the presynaptic action of these agents.

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USSR

BOLDYREV

A.A.

UDC: 577.1

9

"Second All-Union Biochemical Congress"

Moscow, Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 425-435

Abstract: The Second All-Union Biochemical Congress was held on 20-28 Oct in Tashkent under the auspices of the Uzbek Department of the All-Union Biochemical Society. Symposia on evolutionary biochemistry, the connection between the structure and functions of proteins, the biosynthesis of proteins, the biochemistry of membranes, biological oxidation, the functional biochemistry of cell structures, and the regulation of enzymatic processes, the structure and function of muscles, and other subjects were conducted. The introductory lecture, which dealt with the evolutionary aspects of nucleic acids, was given by A. N. BELOZERSKIY (Moscow). A leading report in the symposium on evolutionary biochemistry was presented by A. I. OPARIN (Moscow), who discussed theories and experimental results pertaining to the origin of life on earth. A report by V. A. STEPANOV (Moscow) dealt with the evolution of protein enzymes. In the symposium on the biosynthesis of proteins, A. A. BAYEV (Moscow) reported the results of work on the structure of various t-RNA and the properties of molecular fragments of valine t-RNA. In the course of this work, for which a State Prize was awarded, the succession of nucleotides in the valine t-RNA chain was fully clarified. A paper by L. L. KISELEVA

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- 11 -

USSR

Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 425-435

(Moscow) dealt with the role of aminoacyl-t-RNA-synthetases in the synthesis of aminoacyl-t-RNA. t-RNA synthetases specific for methionine, formylmethionine, serine, lysine, and phenylalanine have been identified. A report by R. I. SAGLANIK (Novosibirsk) reviewed work on the suppression of the synthesis of virus nucleic acids by nucleases. Animal experiments showed that administration of DNA-ase prevented the death of mice infected with the viruses of tick-born encephalitis, influenza, and foot-and-mouth disease and made guinea pigs insusceptible for a certain length of time to infection with foot-and-mouth disease. The nucleases did not produce any toxic effects. Application of nucleases in the treatment of human virus diseases showed that they were effective in herpetic keratitis, adenovirus conjunctivitis, tick-born encephalitis, herpes zoster, and other diseases. At present DNA-ase for the treatment of these diseases is being produced industrially. Its application for 4 yrs at major foci of tick-born encephalitis in Siberia yielded very good results. Research is being continued on the use of nucleases in the treatment of virus diseases of farm animals. In the symposium on the biochemistry of membranes, P. G. KOSTRYUK (Kiev) in a report dealing with the transfer of ions in connection with the generation of excitation potentials by nerve cells expressed the opinion that the action of nerve impulse transmitters

2/4

USSR

Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 425-435

is associated not only with changes in membrane permeability, but also involving a direct effect producing transfer of cations. This was confirmed in a paper by A. A. BOLDYREV (Moscow), who found that acetylcholine inhibited the active transfer of Ca^{++} in a sarcoplasm reticulum fraction. The inhibition was exerted on ATP-ase, which brings about transfer of Ca^{++} , and presumably constituted an effect that makes possible the transfer of Ca^{++} from the reticulum during excitation. Boldyrev pointed out that in view of the localization within muscle cells of the enzymes that regulate acetylcholine metabolism, this effect produced by acetylcholine may be directly related to its functioning as an intracellular regulator of excitation processes. Reports given by members of the Kiev school of biochemists (A. V. PALLADIN, O. V. KIRSENKO, G. L. VAVILOVA, M. K. MALYSHEVA, and others) had a bearing on the functioning of Na-K - activated transport ATP-ase in membranes. I. I. IVANOV (Leningrad) found that ATP gelled sarcoplasm proteins of skeletal muscles, whereas Ca^{++} liquefied the gel that formed. He assumed that a reversible gelation produced in this manner is responsible for the plastic tones of smooth and striated muscles. In a resolution passed by the Congress, progress in biochemical research was reviewed. It was stated that the membership of the Biochemical Society increased from 3500 to 6500 between the First and Second Congress. Institutes of Proteins, Photosynthesis, and Physiology and Biochemistry

3/4

- 18 -

USSR

Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 425-435

of Microorganisms were organized within the Academy of Sciences USSR. It was pointed out that it is necessary to conduct more intensive research in several fields including the structure of proteins in relation to their functional activity, biochemical genetics, and (in view of the importance of this field from the standpoint of solution of general problems of biochemistry) the biochemistry of microorganisms and viruses.

L/L

USSR

UDC 577.153.3

BOLDYREV, A. A., PETUKHOV, V. B., PUTOV, V. B., SPIKKINA, G. D., and TKACHUK, V. A.

"Role of Acetylcholine and Imidazole-Containing Dipeptides in the Control of Cation Transport Through Muscle Membranes"

Ukrainskiy Biokhimicheskiy Zhurnal, Vol 43, No 1, 1971, pp 125-135

Abstract: Acetylcholine in the neuromuscular apparatus has an additional function to its synaptic effect: it acts on the enzymatic properties of extrasynaptic muscular membranes, sarcolemma and sarcoplasmatic reticulum. The effect of acetylcholine in combination with imidazole-containing compounds was studied. In particular, experimental data were collected on the effect of imidazole on contractile activity and the end plate potential of a nerve-muscle preparation from a frog, during rhythmic stimulation of a nerve. Experiments were conducted to determine the dependence of ATP-ase activity of heart muscle sarcolemma in a rabbit on the $Na^+ : K^+$ ratio, the effect of addition of $CaCl_2$ and EGTA [ethyleneglycol-bis(2-aminoethyl-ether)-N,N-tetraacetate] on the hydrolysis rate of ATP and acetyl phosphate of cardiac sarcolemma and the skeletal muscle; the dependence of inhibition of Ca^{2+} -ATP activity on the concentration of acetylcholine or buffer

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- 5 -

USSR

BOLDYREV, A. A., et al., Ukrainskiy Biokhimicheskiy Zhurnal, Vol 43, No 1, 1971, pp 125-135

solution; and the effect of acetylcholine on Ca^{+} transport in a preparation of sarcoplasmatic reticulum of a rabbit in the presence of acetylcholine. Fatigue or blocking of neuromuscular transmission by competing toxins is reduced and eliminated by imidazole-containing dipeptides. As a result, an increase in amplitude of the end plate potential is observed and its transformation into an action potential is facilitated. Intensified, spontaneous bioelectrical activity at the myoneural junction. Enzymatic activity of sarcolemma and sarcoplasmatic reticulum transport ATP-ase is inhibited by acetylcholine but enhanced by imidazole and its derivatives. The synergistic effect of both dipeptides and acetylcholine is a more complete inhibition of active ion transport. Experimental data are reported on some mechanisms for the transfer of sarcolemma excitation to the contraction process. Under the effect of acetylcholine, there may be a change in cation transfer. It is assumed that acetylcholine in combination with imidazole-containing dipeptides regulates the intensity and direction of cation transport through muscular membranes.

2/2

1/2 028 UNCLASSIFIED PROCESSING DATE--02 OCT 70
TITLE--MECHANISM OF THE SCHIEMANN REACTION -U-
AUTHOR--(02)-ALSING, T.K., FOLDYREV, A.G. *B*
COUNTRY OF INFO--USSR
SOURCE--ZH. DOK. KHIM. 1970 6(3) 627
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL REACTION MECHANISM, THERMAL DECOMPOSITION, BENZENE
DERIVATIVE, BODON COMPOUND, ORGANIC NITROGEN COMPOUND, EPR SPECTRUM,
FLUORINATED ORGANIC COMPOUND, BODON FLUORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REFL/IRAME--1992/1546 STEP NO--UR/0366/70/006/003/0627/0627
CIRC ACCESSION NO--420112540
UNCLASSIFIED

SPECTROSCOPY GAVE SPECTRA OF LOWER INTENSITY THAN THE DECOMPN. OF I (2
EQUALS NO SUB2). THE DECOMPN. OF I (R IS H, OME, OR NET SUB2) GAVE
QUANT. THE CORRESPONDING ARYL FLUORIDES. THE DECOMPN. OF I (R EQUALS NO
SUB2) GAVE ONLY SIMILAR TO 50PERCENT O SUB2 NO SUB6 H SUB4 F. THE ABOVE
INDICATES THAT CPA SPECTRA ARE DUE TO SIDE REACTIONS AND THAT THE MAIN
SHIEMANN REACTION IS NOT HOMOLYTIC.

UNCLASSIFIED

Pharmacology and Toxicology

UDC 612.817.1

USSR

SEVERIN, S. Ye., BOLDYREV, A. A., and PETUKHOV, V. B., Moscow State University
Imeni M. V. Lomonosov

"Presynaptic Effect of Imidazole and Carnosine"

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Abstract: A study was made of the effect of imidazole (20 mM) and carnosine (10 and 20 mM) on the frequency and amplitude of miniature end-plate potentials (MEP) derived from electrodes implanted in *Rana temporaria* M. cutaneous pectoris in Ringer's solution and in the presence of KCl or d-tubocurarine. The addition of imidazole to the solution increased the MEP frequency by a factor of 1.5-2 and reduced the mean amplitude by 15 to 30%. The increase in frequency was particularly marked after potassium depolarization. After the preparation was washed with Ringer's solution, the frequency and, somewhat later, the mean amplitude returned to their normal levels. Carnosine in either concentration increased the MEP frequency by a factor of three, but reduced the mean amplitude only slightly. Addition of imidazole and carnosine after d-tubocurarine increased the MEP frequency but did not prevent the amplitude from decreasing. The increase in quantum composition of the end-plate potentials brought about by imidazole and carnosine is direct evidence of the presynaptic action of these agents.

USSR

BOLDYREV

A.A.

UDC: 577.1

"Second All-Union Biochemical Congress"

Moscow, Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 425-435

Abstract: The Second All-Union Biochemical Congress was held on 20-26 Oct 69 at Tashkent under the auspices of the Uzbek Department of the All-Union Biochemical Society. Symposia on evolutionary biochemistry, the connection between the structure and functions of proteins, the biosynthesis of proteins, the biochemistry of membranes, biological oxidation, the functional biochemistry of cell structures, and the regulation of enzymatic processes, the structure and function of muscles, and other subjects were conducted. The introductory lecture, which dealt with the evolutionary aspects of nucleic acids, was given by A. N. BELOZERSKIY (Moscow). A leading report in the symposium on evolutionary biochemistry was presented by A. I. OPARIN (Moscow), who discussed theories and experimental results pertaining to the origin of life on earth. A report by V. A. STEPANOV (Moscow) dealt with the evolution of protein enzymes. In the symposium on the biosynthesis of proteins, A. A. BAYEV (Moscow) reported the results of work on the structure of various t-RNA and the properties of molecular fragments of valine t-RNA. In the course of this work, for which a State Prize was awarded, the succession of nucleotides in the valine t-RNA chain was fully clarified. A paper by L. L. KISELEVA

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- 17 -

USSR

Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 425-435

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USSR

Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 425-435

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- 18 -

USSR

Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 425-435

of Microorganisms were organized within the Academy of Sciences USSR. It was pointed out that it is necessary to conduct more intensive research in several fields including the structure of proteins in relation to their functional activity, biochemical genetics, and (in view of the importance of this field from the standpoint of solution of general problems of biochemistry) the biochemistry of microorganisms and viruses.

4/4

USSR

UDC 577.153.3

BOLDYREV, A. A., PETUKHOV, V. B., PUTOV, V. B., SPIKKINA, G. D., and TKACHUK, V. A.

"Role of Acetylcholine and Imidazole-Containing Dipeptides in the Control of Cation Transport Through Muscle Membranes"

Ukrainskiy Biokhimicheskiy Zhurnal, Vol 43, No 1, 1971, pp 125-135

Abstract: Acetylcholine in the neuromuscular apparatus has an additional function to its synaptic effect: it acts on the enzymatic properties of extrasynaptic muscular membranes, sarcolemma and sarcoplasmatic reticulum. The effect of acetylcholine in combination with imidazole-containing compounds was studied. In particular, experimental data were collected on the effect of imidazole on contractile activity and the end plate potential of a nerve-muscle preparation from a frog, during rhythmic stimulation of a nerve. Experiments were conducted to determine the dependence of ATP-ase activity of heart muscle sarcolemma in a rabbit on the $Na^+ : K^+$ ratio, the effect of addition of $CaCl_2$ and EGTA [ethyleneglycol-bis(2-aminoethyl-ether)-N,N-tetraacetate] on the hydrolysis rate of ATP and acetyl phosphate of cardiac sarcolemma and the skeletal muscle; the dependence of inhibition of Ca^{2+} -ATP activity on the concentration of acetylcholine or buffer

1/2

- 5 -

USSR

BOLDYREV, A. A., et al., *Ukrainskiy Biokhimicheskiy Zhurnal*, Vol 43, No 1, 1971, pp 125-135

solution; and the effect of acetylcholine on Ca^{2+} transport in a preparation of sarcoplasmic reticulum of a rabbit in the presence of acetylcholine. Fatigue or blocking of neuromuscular transmission by competing toxins is reduced and eliminated by imidazole-containing dipeptides. As a result, an increase in amplitude of the end plate potential is observed and its transformation into an action potential is facilitated. Intensified, spontaneous bioelectrical activity at the myoneural junction. Enzymatic activity of sarcolemma and sarcoplasmic reticulum transport ATP-ase is inhibited by acetylcholine but enhanced by imidazole and its derivatives. The synergistic effect of both dipeptides and acetylcholine is a more complete inhibition of active ion transport. Experimental data are reported on some mechanisms for the transfer of sarcolemma excitation to the contraction process. Under the effect of acetylcholine, there may be a change in cation transfer. It is assumed that acetylcholine in combination with imidazole-containing dipeptides regulates the intensity and direction of cation transport through muscular membranes.

2/2

1/2 028 UNCLASSIFIED
TITLE--MECHANISM OF THE SCHIEMANN REACTION -U- PROCESSING DATE--02OCT70
AUTHOR--(02)-ALSING, T.K., BOLDYREV, A.G. **B**
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970 6(3) 627
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL REACTION MECHANISM, THERMAL DECOMPOSITION, BENZENE
DERIVATIVE, BORON COMPOUND, ORGANIC NITROGEN COMPOUND, EPR SPECTRUM,
FLUORINATED ORGANIC COMPOUND, BORON FLUORIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1546 STEP NO--UR/0366/70/006/003/0627/0627
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2/2 028

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112540

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THERMAL DECOMPN. OF RC SUB6 H SUB4 N: NBF SUB4 (I) (R IS H, OME, NET SUB2) IN THE RESONATOR OF AN EPR SPECTROMETER GAVE SPECTRA OF LOWER INTENSITY THAN THE DECOMPN. OF I (R EQUALS NO SUB2). THE DECOMPN. OF I (R IS H, OME, OR NET SUB2) GAVE QUANT. THE CORRESPONDING ARYL FLUORIDES. THE DECOMPN. OF I (R EQUALS NO SUB2) GAVE ONLY SIMILAR TO 50PERCENT O SUB2 NC SUB6 H SUB4 F. THE ABOVE INDICATES THAT EPR SPECTRA ARE DUE TO SIDE REACTIONS AND THAT THE MAIN SHIEMANN REACTION IS NOT HOMOLYTIC.

UNCLASSIFIED

USSR

BOLDYREV, A. I., Professor, Doctor of Medical Sciences

Profilaktika Nervnykh Rasstroystv (Prophylaxis of Nervous Disorders), Moscow, 1972, "Znaniye," 32 pp

Translation: Annotation: The prevention of disease of the central nervous system remains an extremely urgent problem of public health. The ever-increasing load on the nerves of modern man and the rapid pace of modern life lead to breakdowns in nervous and emotional activity, to the appearance of such diseases as neurosis and neurotic and effective reactions. The author of this brochure tells about clinical manifestations of the most widespread nervous disorders and about the mechanisms on which their development is based. He gives useful advice which will help to avoid the appearance of these diseases.

Contents:

Clinical Manifestations of Nervous Disorders	Page 3
Causes of Nervous Disorders	7
Factors Which Predispose to the Appearance of Nervous Disorders	13
Types of Higher Nervous Activity	14
The Concept of the Psychogenic Factor	17
Prophylaxis of Nervous Disorders	18
General Social Measures	18
Individual Prophylaxis	23

UDC: 681.325.54

USSR

BOLDYREV, A. I.

"A Parallel Adder Based on Ferrite-Transistor Modules"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrazttsy, Tovarnyye Znaki, No 24, 1970, Soviet Patent No 277409, Class 42, Filed 4 April 1969, p 133

Abstract: This Author's Certificate introduces a parallel adder based on ferrite transistor modules with two counting inputs and three outputs for radix-minus-one complement adding with parallel carry. As a distinguishing feature of the patent, speed is improved and the device is simplified by connecting one counting input of the inhibit element to the input line, while the other is connected directly and through a matching element to the second and first outputs of the inhibit element for the preceding digital place of the adder register.

1/2 017
TITLE--THE STRUCTURE OF THE FIRST SEIZURES IN EPILEPSY SEEN IN CHILDREN
AND ADULTS -U-
AUTHOR--BOLDYREV, A.I.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970,
VOL 70, NR 6, PP 902-906
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--EPILEPSY, SYNDROME, MEDICAL EXAMINATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/1159

STEP NO--UR/0246/70/000/006/0902/0906

ACCESSION NO--AP0126762

2/2 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0126762

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR STUDIED THE FIRST PAROXYSMS IN 100 CHILDREN WITHIN THE AGE GROUP FROM SEVERAL MONTHS TO 16 YEARS, AND IN 300 ADULTS FROM 16 YEARS AND OLDER. IN CHILDREN, ESPECIALLY IN THE YOUNGER GROUP, IN ACCORDANCE WITH THE RELATIVELY PREDOMINANT SUBCORTICAL ACTIVITY AND LOCALIZATION OF THE EPILEPTICAL FOCUS IN THIS AREA, THERE IS A PREVALENCE OF PROPULSIVE, RETROPULSIVE AND IMPULSIVE PETIT MALES, VISCERO VEGETATIVE AND PSYCHOMOTOR ATTACKS, NOCTURNAL PHOBIAS, SOMNABULISM, ABORTIVE CONVULSIVE PAROXYSMS AND TONIC FITS. IN ADULTS THERE IS A PREDOMINANCE OF PAROXYSMS RELATED TO A PRIMARY CORTICAL LOCALIZATION OF THE EPILEPTICAL FOCUS: CLONIC CONVULSIONS, PAROXYSMS OF DISTURBED PERCEPTION, THINKING, SPEECH, SLEEP TALKING, NIGHTMARES AND PSYCHOSENSORY ATTACKS. FACILITY: MOSKOVSKIY NAUCHNO-ISSLED. INSTITUT PSIKHIATRII, MZ RSRSR.

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USSR

UDC 621.791.75.001.5:548.73/.75

BOLDYREV, A. M., Candidate of Technical Sciences, DOROFYEV, E. B., Engineer,
and ANTONOV, Ye. G., Engineer

"Control of Crystallization of Metal during Fusion Welding"

Moscow, Svarochnoye Proizvodstvo, No 6, 1971, pp 35-37

Abstract: The most universal method of producing a finer metal seam structure is that of regulating the degree of concentration supercooling by applying oscillations to the welding bath. This article reports on a study involving melting of plates measuring 100 by 200 mm with an electric DC arc, in which an external magnetic field was applied to the welding bath, created using a magnetizing coil installed on the air-cooled nozzle of a welding torch. It is concluded that this contactless method of generating oscillations in the conducting liquid metal is the most promising technological method of introducing oscillations to the welding bath. A finer metal seam structure was observed during induction of both constant and variable magnetic fields. The optimal pulsating magnetic field frequency was found to be 5-16 Hz.

1/1

USSR

UDC 63 .95

KHELEMSKIY, M. Z., CHEPEGINA, F. D., and BOLDYREV, B. G.

"Application of Thiosulfonate Esters in the Control of Decay of Root Crops During Storage"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiological Effects of Compounds, Republic Interscience Symposium), Vyp 4, 1972, pp 110-113 (from Referativnyy Zhurnal -- Khimiya, No 4(II), 1973, Abstract No 4N649 by T. A. Belyayeva)

Translation: Eighteen compounds were studied under laboratory conditions to determine the physiological effects of $\text{RSO}_2\text{SR}'$ on stored root crop decay. The highest fungicidal activity against *Botrytis cinerea* and *Fusarium betae* was exhibited by $\text{EtSO}_2\text{SCCl}_3$ and $\text{PrSO}_2\text{SCCl}_3$, and against *Phoma beta*, by MeSO_2SMe , EtSO_2SEt , EtSO_2SBu , and PrSO_2SPr . These compounds diluted 1:5000 still had fungicidal activity but did not have a toxic effect on the sugar beets.

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- 24 -

Acc. Nr. **AP0053771**Abstracting Service:
CHEMICAL ABST.**B**
6/30Ref. Code
UR0366

110949k Thiosulfonic acids. XXVII. Reaction of thiosulfonic acid esters with phenyl- and butyllithium. Boldyrev, B. G.; Stoyanovskaya, Ya. I. (L'vov. Politekh. Inst., USSR). *Zh. Org. Khim.* 1970, 6(2), 332-4 (Russ). The reaction of RSO_2SR^1 with R^2Li in abs. Et_2O at reflux temp. gave RSO_2Li and R^1SR^2 (R , R^1 , and R^2 given): $p\text{-AcONHC}_6\text{H}_4$, Et, Ph; Ph, $p\text{-ClC}_6\text{H}_4$, Ph; $p\text{-AcNHC}_6\text{H}_4$, Ph, Ph; $p\text{-ClC}_6\text{H}_4$, $p\text{-ClC}_6\text{H}_4$, Ph; Et, Et, Bu; Et, Bu, Bu; $p\text{-AcNHC}_6\text{H}_4$, Et, Bu; $p\text{-AcNHC}_6\text{H}_4$, Bu, Bu; $p\text{-AcNHC}_6\text{H}_4$, Bu, Bu; $m\text{-ClC}_6\text{H}_4$, $p\text{-ClC}_6\text{H}_4$, Bu. CPJR

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19830834

7

USSR

UDC 621.039.538

BOLDYREV, G. N., VESELKIN, A. P., YEGOROV, Yu. A., YEMEL'YANOV, I. Ya.,
ZHIRNOV, A. D., ORLOV, Yu. V., KONSTANTINOV, L. V.

"Study of the Shielding Problems on Water Cooled - Water Moderated Research
Reactors"

V sb. Vopr. fiz. zashchity reaktorov (Problems in Reactor Safety Physics --
Collection of Works), No. 5, Moscow, Atomizdat, 1972, pp 235-250 (from
RZh-50. Yadernyye reaktory, No 5, May 72, Abstract No 5.50.62)

Translation: Several special installations were constructed to study shield-
ing. The BSF and GTR installations were swimming pool reactors employing
1 and 3 Mw neutrons, respectively, placed on moving bridges in large water
pools. The B-2 device on the BR-5 reactor was developed to study the laws
of the attenuation of γ -quanta and reactor neutrons in the geometry of a
unidirectional beam; the materials to be studied or models of the shielding
were placed in a niche in the reactor shielding. A zero-power reactor was
intended for studying processes in the shield directly adjacent to the
reactor core. The reactor was equipped with filters in one of the directions
making it possible to obtain an optimal relationship between the neutrons